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Title: Education Professionals' Attitudes towards the Inclusion of Children with ADHD: The Role of Knowledge and Stigma

Title: Education Professionals' Attitudes towards the Inclusion of Children with ADHD: The Role of Knowledge and Stigma

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Abstract

Attitudes play a pivotal role in the inclusion of children with ADHD in mainstream schools but little is known about factors that influence these. This study investigated the effect of ADHD knowledge and stigma on professionals' attitudes towards mainstream inclusion. Teachers, support-staff, school managers and educational psychologists completed questionnaires assessing ADHD knowledge, stigma and attitudes towards inclusion. Psychologists displayed more knowledge, had less stigmatising beliefs and more inclusive attitudes than other professions. Regression analyses revealed those with more knowledge of ADHD and less stigma held more positive attitudes towards mainstream inclusion. Results have implications for how to promote inclusive beliefs about ADHD.

Keywords: ADHD; ADHD Knowledge; ADHD Stigma; Attitudes towards Inclusive Education; Education Professionals.

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Inclusion is a broad vision which aims to increase the acceptance and participation of all children within mainstream education (Farrell, 2000; Mahat, 2008). Inclusive education is intended to maximise the educational experience of children with disabilities and developmental disorders such as Attention Deficit/Hyperactivity Disorder (ADHD) within mainstream schools. Children with ADHD often present with complex comorbid difficulties (Rhodes, 2014) and have difficulties both academically (Cohen et al., 2000; Geurts & Embrechts, 2008) and socially (Bagwell, Molina, Phelham & Hoza, 2001) at school. As such, school has been described as one of the most challenging and problematic places for children with ADHD (Carte, Nigg & Hinshaw, 1996; Kos, Richdale & Hay, 2006). Whilst policy mandates inclusion, it is teachers' behaviour that determine its success. For example, attitudes towards inclusion play a key role in the use of specific inclusive teaching practices (Ahmmed, Sharma, & Deppeler, 2013; MacFarlane & Woolfson, 2013; Wilson, Woolfson, Durkin, & Elliott, 2016) and may impact upon readiness to embrace inclusive pedagogy (see Florian & Rouse, 2009; Lambe & Bones, 2006).

Attitudes towards inclusion

Fishbein and Ajzen (2010) define attitude as 'a latent disposition or tendency to respond with some degree of favourableness or unfavourableness to a psychological object' (pp.76). An attitude can therefore be described as an evaluation of the behaviour and can influence whether the behaviour is performed (Ajzen & Fishbein, 2005). Multicomponent models of attitude (e.g., Eagly & Chaiken, 1993; Zanna & Rempel, 1988) state that attitudes comprise three components: cognitive (e.g. teacher beliefs, thoughts, and attributes about the inclusion of children with ADHD), affective (teacher feelings or emotions linked to working with children with ADHD) and behavioural (how the teacher intends to respond to the attitude object).

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Several studies have reported teachers to have positive attitudes towards inclusion (Avramidis & Kalyva, 2007; Gal, Schreur, & Engel-Yeger, 2010; Ojok & Wormnæs, 2013; Westwood & Graham, 2003), viewing inclusion as advantageous and enjoyable. On the other hand, others report attitudes to be neutral (De Boer, Pijl, & Minnaert, 2011; De Boer, Pijl, Post, & Minnaert, 2012; Memisevic & Hodzic, 2011; Savolainen, Engelbrecht, Nel, & Malinen, 2012) or negative (Alquraini, 2012; Brackenreed, 2008; Chiner & Cardona, 2013; Rakap & Kacmarek, 2010; Hwang & Evans, 2011). This variability has made it difficult to draw strong conclusions regarding the nature of teacher attitudes towards inclusion. Further, research (e.g. Avramidis & Norwich, 2002) has shown that teachers are less positive towards the inclusion of children with 'behavioural problems', a key characteristic of ADHD.

Very few studies have focused on the inclusion of children with ADHD in mainstream classrooms despite ADHD being the most common psychological disorder amongst children (Shue & Douglas, 1992). This is important given attitudes towards inclusion influence the use of teaching practices, individualised instruction, teacher-parent collaboration and the overall classroom environment (Monsen, Ewing, & Kwoka, 2014; Ross-Hill, 2009; Ryan, 2009; Sharma & Sokal, 2015; Strogilos & Stefanidis, 2015). There is a need then to examine the nature of attitudes towards including children with ADHD specifically and what factors may influence these.

It should be noted that across the studies mentioned above, only classroom teachers were considered. Very few studies have investigated the attitudes of education professionals beyond teachers. This is a significant research deficit given children both with and without additional support needs spend an increasing amount of time with figures other than their class teacher (Donaldson, 2011; Welch, Bronwell & Sheridan, 1999). For example, governments' efforts to increase the existence of teaching support

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staff (known as personal support assistants [PSAs] in Scotland) have led to a significant rise in the number of teaching assistants (Wilson, Schlapp & Davidson, 2003). Further, children with ADHD can spend a significant part of the day working alone with a principal, head or deputy head teacher. School based psychologists (called Educational Psychologists, in Scotland) are also commonly involved in decision making about provision and support for learning (Hart, Zimbrich & Ghiloni, 2001).

In addition to examining the nature of attitudes towards the inclusion of children with ADHD and how these may differ between professions, it is also important to consider what influences these attitudes. If we can identify predictors of attitudes, we can inform intervention in terms of enhancing such beliefs. For example, previous research has indicated a correlation between knowledge of particular disabilities and attitudes towards inclusion (e.g. Bekle, 2004; Gureasko-Moore, DuPaul & White, 2005). This may also be true for attitudes towards including children with ADHD.

Knowledge of ADHD

Knowledge and general information about ADHD (including symptoms, diagnosis & treatment) is pivotal to educators (West, Taylor, Houghton & Hudyma, 2005). This can ensure children with ADHD are properly included, benefit from lessons, and can minimise disruption to the education of peers without ADHD (Barkley & Murphy, 1998; Massetti, Lahey & Pelham, 2008). Such information also ensures teachers can contribute to discussions around the significance of ADHD symptoms in the classroom; a common domain of interest to diagnosing physicians using DSM-V (American Psychiatric Association, 2013) criteria. Pescosolido et al. (2008) reported less than half of adult participants could define what ADHD was thus indicating a serious lack of knowledge about the disorder. Further, evidence suggests that ADHD is

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also poorly understood by educators (Jerome, 1995; Jerome, Gordon & Hustler, 1994; Kasten, Coury & Heron, 1992; Safaan, El-Nagar, & Saleh, 2017). There is a need then, to examine the level of knowledge of ADHD amongst education professionals and to consider whether this differs according to profession. Given the link between knowledge and attitudes reported in relation to other developmental disabilities (Avramidis & Kalyva, 2007; Batsiou, Bebetos, Panteli, & Antoniou 2008; Ghanizadeh, Bahredar, & Moeini, 2006; Kim, Park, & Snell, 2005), there is a need to consider whether knowledge about ADHD has an impact on education professionals' attitudes towards inclusion. If this is also the case with ADHD, there may be scope to enhance inclusive attitudes by increasing access to knowledge about ADHD amongst education professionals. Knowledge and awareness may also decrease stigmatised beliefs about the disorder and therefore also make inclusive attitudes towards ADHD more positive. Research in other domains has shown that providing individuals with knowledge can reduce stigma towards a disability or disorder (Martinez-Zambrano et al., 2013).

Stigma associated with ADHD

Stigma can be described as a set of negative beliefs held by a group or an individual and is an adverse reaction to a negatively evaluated difference (Bell, Long, Garvan & Bussing, 2011; Goffman, 1963). As such, it is not an attribute of the individual who bears the difference, but rather manifests in the interactions between the individual and those who evaluate the difference in negative terms. Link and Phelan (2001) established the processes that produce stigmatized beliefs. They argue that stigma exists when four key components converge. The first is labelling which relates to recognising and labelling human differences. The second component involves stereotyping (i.e., assigning negative attributes to these differences). The third

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component concerns separation. The reaction to those with differences leads to a sense of 'otherness' and are placed in a distinct category. Finally, the fourth component concerns the labelled individual experiencing discrimination which impacts upon their ability to participate fully in society. Thus stigma is the result of an interplay between labelling, stereotyping, separation, status loss, and discrimination. Evidence suggests that there are two main consequences of stigma: status loss and social rejection. Status loss relates to others seeing the stigmatized individual as less than they are. Social rejection involves the individual being excluded from fully participating in society (Goffman, 1963).

Based on this work, an abundance of research has examined stigmatized beliefs towards those with mental health disorders (Bharadwa, Mallesh, & Suziedelyte, 2017; Corrigan, 2004; Ritsher & Phelan, 2004; Wright, Gronfein, & Owens 2000) and physical disabilities (Barg, Armstrong, Hetz, & Latimer, 2010; Green, Davis, Karshmer, Marsh, & Straight, 2005; Olney & Brockelman., 2005; Zheng et al., 2016). This work tends show that people with mental health disorders and disabilities are viewed less favorably than those without such illnesses. This can lead to discrimination in housing, employment, education and health care opportunities (Lucas & Phelan, 2012).

Several studies have reported stigma associated with ADHD among both the general population and educational professionals. Supporting Goffman's assertions, individuals with ADHD are more often rejected by the general population (Martin, Pescosolido, Olafsdottir, & McLeod, 2007). Similar stigmatized beliefs have been reported amongst teachers. For example, Ohan, Visser, Strain and Allen (2011) reported that teachers expressed negative emotions and a lack of confidence towards the ADHD label whilst others have reported teacher pessimism about educating

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children with ADHD in terms of discipline and achievement (Kauffman, Lloyd & McGee, 1989).

These stigmatized beliefs have in turn been reported to negatively influence the attainment of pupils with ADHD (Chi & Hinshaw, 2002) as well as other students' perceptions of peers with the disorder (Atkinson, Robinson & Shute, 1997). It is therefore important to consider stigma towards ADHD amongst education professionals and investigate whether those with less stigmatised beliefs have more knowledge of the disorder. If this is the case, there may be scope to reduce stigma by increasing knowledge. In addition, we can examine how this relates to attitudes towards inclusion. Whilst greater experiential-based knowledge about inclusive classrooms practices may promote positive attitudes (Shoho, Katims & Wilks, 1997), the role of stigma in this context has never been studied. Likewise, the role of subject-specific knowledge about ADHD amongst education professionals is currently unknown.

The Current Study

This study examines knowledge and stigma surrounding ADHD and attitudes towards inclusion in a varied sample of education professionals. The study had two main aims. The first was to compare differences in knowledge, stigmatised beliefs towards ADHD and attitudes towards the inclusion of children with ADHD amongst groups of the following professions working in the primary (elementary) education sector in Scotland: classroom teachers, school managers, teaching support (assistant) staff and school-based educational psychologists. Given no previous research has investigated these differences, no specific hypothesis was made. The second aim was to examine the relationships between knowledge, attitude and stigma. Specifically, we

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examined whether knowledge and stigma towards ADHD predicted attitudes towards inclusion. We hypothesised that knowledge would predict attitudes towards inclusion but that this would be mediated by stigma. In other words, knowledge would result in less stigmatised beliefs towards ADHD and this in turn would be associated with more positive attitudes towards mainstream educational inclusion.

Method

Participants

Data were collected from 135 participants (83% female) working in the Scottish state education system. This sample comprised 38 classroom support staff (known in Scotland as personal support assistants [PSAs]), 35 mainstream class teachers, 31 school managers (principal, head & depute head teachers) and 31 school-based educational psychologists. Ages ranged from 23 to 62 ($M=45.29$, $S.D=11.33$).

Measures

Attitudes towards Inclusion. The Multidimensional Attitudes towards Inclusive Education Scale (MATIES; Mahat, 2008) was used to measure attitudes towards the inclusion of children with ADHD. The MATIES assesses the cognitive, affective and behavioural components of attitudes. We adapted the scale to measure attitudes specifically towards working with children with ADHD. This involved relating each item to a child with ADHD. The cognitive component of attitudes was measured using six items ($\alpha=.78$). An example cognitive item is 'I believe that students with ADHD can learn in the regular curriculum of the school if the curriculum is adapted to meet their individual needs'. The affective component of attitudes was also measured using six items ($\alpha=.84$). An example affective item is 'I get frustrated when I have difficulty communicating with students with ADHD'.

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Finally, six items were used to assess the behavioural component of attitudes. An example behavioural item is 'I am willing to adapt the curriculum to meet the individual needs of students with ADHD regardless of their ability' ($\alpha=.94$). The measure utilised a 6-point Likert scale ranging from '*strongly agree*' to '*strongly disagree*'. Higher scores indicated more positive attitudes. The reliability of the scale has previously been confirmed (Ahmmed et al., 2013; Yan, & Sin, 2014, 2015).

Stigma towards ADHD. The ADHD Stigma Questionnaire (ASQ: Kellison, Bussing, Bell & Garvan, 2010) was used to measure participants' stigmatised beliefs towards students with ADHD. The ASQ is a 26 item self-report measure which contains items measuring disclosure concerns relating to telling others about having ADHD (e.g. 'Risky to tell others'); negative self-image which concerns perceptions of how those with ADHD feel about themselves (e.g. 'Feel they aren't as good as others'); concerns with public attitudes which relates to perceptions about what an individual with ADHD believes other people think about them (e.g. 'Most people are uncomfortable around someone w/ADHD'). Responses are measured using a 4-point Likert scale 1=*strongly disagree* to 4= *strongly agree* to produce an overall stigma score ($\alpha=.85$). Higher scores equate to higher stigmatised beliefs. The reliability of the ASQ has been previously demonstrated (e.g. Bell et al., 2011; Kellison, et al., 2010).

Knowledge about ADHD. Knowledge about ADHD was measured using the Knowledge about Attention Deficit Disorders Scale (KADDS: West et al., 2005). The KADDS measures knowledge in three specific areas: symptoms/diagnosis of ADHD (e.g. 'Children with ADHD are frequently distracted by extraneous stimuli' $\alpha=.60$); treatment of ADHD (e.g. 'Is Electroconvulsive Therapy an effective alternative treatment for severe cases of ADHD?' $\alpha=.73$); general information about ADHD (e.g.

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Do ADHD children tend to be more compliant with father than mother? $\alpha=.75$).

Participants are required to respond to each statement about ADHD by choosing either 'true', 'false' or 'don't know'. Others have supported the reliability of the measure (Alkahtani, 2013; Guerra & Brown, 2012).

Procedure

After ethical approval was obtained, local authorities were contacted in order to seek permission to contact schools to discuss the research. Participating schools were sent questionnaire packs to distribute to staff members who met the inclusion criteria (as a teacher, school manager, PSA or as an educational psychologist). Questionnaire packs contained an information sheet, a consent form and a debrief sheet. One month after the questionnaires were delivered, schools were contacted to arrange a date to collect responses.

Data Analysis

We used ANOVA to examine differences in ADHD knowledge (general knowledge about ADHD, symptoms/diagnosis of ADHD, treatment of ADHD) and stigma and attitudes towards inclusion between the professions (PSAs, mainstream classroom teachers, school managers and 31 educational psychologists). Next, we examined the relationships between attitudes, knowledge and stigma beliefs amongst all education professions. To do this, we combined scores from all profession groups in order to produce overall mean scores for each variable. Correlational analysis was then used to examine relationships between the variables. Finally, regression and mediational analysis was used in order to determine whether ADHD knowledge or stigmatised beliefs predicted cognitive, affective or behavioural attitudes.

Results

Differences in ADHD Knowledge, Stigma and Inclusive Attitudes Between Professions

The means and standard deviations for attitudes (cognitive, affective and behavioural), stigma and knowledge (general information, symptoms and diagnosis, treatment) are shown in Table 1. We used ANOVA to determine whether there were significant differences in variables as a result of profession.

[Table 1 about here]

Attitudes. There was a statistically significant difference between professions with regards to the cognitive component of attitude ($F[3,133]=13.46, p<.001$). Follow up analysis revealed that the difference between PSAs ($M=4.82$ $SD=.73$) and teachers ($M=5.13$ $SD=.68$) was statistically significant. Differences between teachers and school managers however did not differ significantly. Educational psychologists ($M=5.75$ $SD=.31$) in turn, held significantly higher still attitudes towards the inclusion of children with ADHD compared with all other groups suggesting this they have the most positive cognitive attitude towards the inclusion of children with ADHD.

In relation to the affective attitude component, ANOVA again, revealed differences between profession groups ($F[3,133]=8.35, p<.001$). Post-hoc analysis showed that educational psychologists scored significantly higher ($M=5.61$ $SD=.57$) than all other professions. This suggests educational psychologists have the most positive affective attitude. A similar pattern of results were found for the behavioural attitude component whereby educational psychologists ($M=5.97$ $SD=.90$) were significantly more positive than any other profession ($F[3,130]=4.39, p=.006$).

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Stigma. The effect of profession on overall stigma scores was statistically significant ($F[3,131]=10.83, p<.001$). Post hoc testing showed stigma amongst PSAs ($M=2.53$ $SD=.25$) differed significantly from both teachers ($M=2.34$ $SD=.32$) and educational psychologists ($M=2.18$ $SD=.32$). Stigma beliefs of school managers ($M=2.54$ $SD=.30$) also differed significantly from those of teachers and educational psychologists. This suggests that educational psychologists had less stigmatised beliefs towards children with ADHD than any other profession. Further, teachers held less stigma beliefs than school managers. PSAs had the highest level of stigma beliefs.

General Knowledge about ADHD. ANOVA revealed a significant effect of profession on the knowledge of associated features score ($F[3,131]=14.05, p<.001$). Follow up analysis revealed PSAs ($M=2.25$ $SD=2.66$) scored significantly lower compared with teachers ($M=5.57$ $SD=1.59$) and educational psychologists ($M=8.42$ $SD=2.05$) but not compared with school managers. ($M=5.74$ $SD=2.80$). Educational psychologists scored higher than PSAs, teachers and school managers.

Knowledge about the Symptoms and Diagnosis of ADHD. There were significant between profession differences in relation to knowledge of the symptoms and diagnosis of ADHD ($F[3,131]=21.63, p<.001$). Follow up analysis revealed significant differences between PSAs ($M=4.89$ $SD=1.97$) and teachers ($M=5.89$ $SD=1.71$) and educational psychologists ($M=8.16$ $SD=2.05$). Although there were no differences between teachers and school managers, both groups differed significantly from educational psychologists. These results suggest that educational psychologists displayed the most knowledge about ADHD symptoms and diagnosis.

Knowledge about the Treatment about ADHD. In relation to knowledge about treatment of ADHD, the effect of profession is statistically significant

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($F[3,131]=16.21, p<.001$). Post hoc testing showed only differences between educational psychologists ($M= 8.42$ $SD=2.05$) and all other groups were significantly different (all $p<.001$). Again, this demonstrates that educational psychologists reported having more knowledge about the treatment of ADHD than PSAs, teachers and school managers.

Relationships between ADHD Knowledge, Stigma and Inclusion Attitudes

Next, we examined the relationships between attitudes towards inclusion and ADHD knowledge and stigma amongst education professions. To do this, we combined scores from all profession groups to produce overall mean scores for each variable. Table 2 shows overall means, standard deviations and correlation coefficients for attitudes, stigma and knowledge. Both the cognitive and affective components of inclusive attitudes were negatively correlated with stigma towards children with ADHD and positively correlated with each type of knowledge (symptoms and diagnosis, general information and treatment). Thus, those who scored lower on stigma beliefs and reported higher levels of knowledge of ADHD had more positive attitudes towards including a child with ADHD in mainstream classrooms. Further, stigma was negatively correlated with knowledge of ADHD symptoms and diagnosis and knowledge of treatment for the disorder. This indicates that those with more knowledge had lower levels of stigmatised beliefs towards children with ADHD.

[Table 2 about here]

Predicting Attitudes Towards Inclusion.

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To identify predictors of education professionals' attitudes (cognitive and affective) towards including a learner with ADHD in the mainstream classroom, hierarchical multiple regression was used. Years of teaching experience was entered at Step 1 given that previous research has found this to predict attitudes towards inclusion of children with disabilities (Avramidis et al., 2000; Avramidis & Norwich, 2002). Knowledge about ADHD variables (general information, symptoms and diagnosis and treatment) were added at Step 2. Finally, stigma towards children with ADHD was added at Step 3.

Cognitive attitudes. The results showed (See Table 3) that at Step 1, years' experience did not account for a statistically significant proportion of the variance ($R^2=.01$, $p=.183$). When knowledge variables were added to the model at Step 2, this resulted in a significant increase to R^2 ($R^2=.20$, $R^2_{\text{change}}=.19$, $p<.001$). Only knowledge about ADHD symptoms and diagnosis was a significant predictor of cognitive attitudes towards inclusion ($\beta=.27$ $p=.014$). The inclusion of stigma resulted in a significant increase to R^2 ($R^2=.24$, $R^2_{\text{change}}=.04$, $p=.016$). At this Step however, only stigma was a significant predictor of cognitive attitudes towards inclusion ($\beta=-.20$ $p=.016$). Those who reported lower levels of stigma towards children with ADHD, the more inclusive their attitude. The inclusion of stigma reduced the strength of the relationship between cognitive attitudes and knowledge of ADHD symptoms and diagnosis. This suggests a possible mediation model whereby knowledge of symptoms and diagnosis has an indirect effect on cognitive attitudes through stigma beliefs.

To test this, Hayes' PROCESS macro (Hayes, 2009) for mediation was used. Partially supporting our hypothesis, this showed that stigma beliefs towards ADHD mediated the relationship between knowledge about symptoms and diagnosis and

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cognitive attitudes towards inclusion ($\beta = .02$, BCa CI [.003, .05]). It should be noted though, that the effect was small. Educational professionals with more knowledge about ADHD's symptoms and diagnosis had lower levels of stigmatised beliefs towards ADHD and thus had more positive cognitive attitudes towards including a child with ADHD in a mainstream classroom.

[Table 3 about here]

Affective attitudes. The results (see Table 4) showed that at Step 1, years' experience did not account for a statistically significant proportion of the variance ($R^2 = .00$, $p = 1.00$). When knowledge variables were added to the model at Step 2, this resulted in a significant increase to R^2 ($R^2 = .14$, $R^2_{\text{change}} = .14$, $p < .001$). Only knowledge about ADHD treatment was a significant predictor of affective attitudes ($\beta = .34$, $p = .003$). The inclusion of stigma resulted in a significant increase to R^2 ($R^2 = .17$, $R^2_{\text{change}} = .03$, $p = .033$). At this Step, both knowledge about ADHD treatment ($\beta = .30$, $p = .007$) and stigma ($\beta = -.19$, $p = .033$) were significant predictors of affective attitudes towards inclusion ($\beta = -.20$, $p = .016$). Those who reported lower levels of stigma beliefs and higher levels of knowledge of treatment of ADHD had more positive affective attitudes towards including a child with ADHD in a mainstream classroom. The inclusion of stigma again reduced the strength of the relationship between affective attitudes and knowledge of ADHD treatment once more suggesting a possible mediation model.

We again used Hayes' PROCESS macro for mediation (Hayes, 2009) to test this. This showed that stigma towards ADHD mediated the relationship between knowledge about ADHD treatment and affective attitudes towards including a child with ADHD ($\beta = .02$, BCa CI [.02, .04]). This partially supported our hypothesis

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though the effect was small. Educational professionals with more knowledge about treatment for ADHD had lower levels of stigma towards the disorder and in turn had more positive affective attitudes towards including a child with ADHD in a mainstream classroom.

[Table 4 about here]

Behavioural Attitudes. The results showed (see Table 5) that at Step 1, years' experience was not a significant predictor of behavioural attitudes ($R^2=.00$, $p=.452$). The inclusion of knowledge to the model resulted in a significant increase to R^2 ($R^2=.13$, $R^2_{\text{change}}=.12$, $p=.001$). Only knowledge about general information relating to ADHD was a significant predictor of behavioural attitudes ($R^2=.26$, $p=.044$). Stigma was not a significant predictor of behavioural attitudes ($R^2=-.12$, $p=.162$). Those who had more general information about ADHD had less positive behavioural attitudes.

[Table 5 about here]

Discussion

The study was the first to examine knowledge and stigma surrounding ADHD and attitudes towards inclusions amongst a range of education professionals (teachers, teaching support staff, school managers & psychologists). Results provide the first evidence of differences between professions in relation to knowledge and stigmatised beliefs towards ADHD and attitudes towards the inclusion of children diagnosed with the disorder in the mainstream classroom. This demonstrates the importance of involving education professionals beyond teachers in studies investigating the educational experience of children with ADHD. Educational psychologists displayed more knowledge of ADHD across all domains (knowledge about features, symptoms/diagnosis and treatment). Psychologists also reported less stigmatised

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beliefs towards children with ADHD and more positive attitudes towards mainstream inclusion than teachers, teaching assistants and school managers.

As expected, knowledge about ADHD was predictive of attitudes towards inclusion. Specifically, knowledge about ADHD symptoms and diagnosis was a significant predictor of cognitive attitudes towards inclusion. Knowledge of ADHD treatment also positively predicted affective attitudes towards inclusion and finally, general knowledge about the general features of ADHD positively predicted behavioural attitudes towards inclusion. Further, stigmatised beliefs mediated the relationship between knowledge as well as both cognitive and affective attitude components regarding mainstream educational inclusion of children with ADHD.

Between Profession Differences

Educational psychologists demonstrated more knowledge of ADHD than school managers, teachers and teaching assistants across all knowledge domains. While others have reported teacher knowledge of ADHD to be low (Alkahtani, 2013; Jerome, 1995; Jerome, Gordon & Hustler., 1994; Kasten et al., 1992; Pescosolido et al., 2008), the relatively high levels of knowledge of ADHD amongst educational psychologists revealed here has never been previously reported and provides scope for intervention.

The findings are likely to reflect differences in pre-service training between school-based psychologists and other education professionals, which suggests more could be done to increase levels of knowledge of ADHD amongst teachers/school managers and teaching assistants at a pre-service stage. For example, Bradshaw and Kamal (2013) claim knowledge of the symptoms, causes and treatment of ADHD is

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not commonly addressed in initial teacher education university courses. In addition, qualified teachers appear to want training to help them to include children with ADHD (McClusky, Lloyd, Kane, Riddell, & Stead, 2008). The provision of specific ADHD training would therefore not only appear necessary but would also be well received. Our findings suggest that educational psychologists' greater knowledge of ADHD and associated lower levels of stigma would equip them well to deliver training about ADHD to a range of education professionals. This extends Watkins, Crosby and Pearson's (2001) findings that educational psychologist want more diversified roles. Allowing opportunities for them to design and deliver training for school staff may be one approach to address this. This kind of inter-professional training (in conjunction with the inclusion of ADHD in teacher education university courses) might prove fruitful in increasing knowledge of ADHD across the education sector. Future studies should examine the impact of such training at both pre-service (university) and in-service (professional development) career stages for education professionals.

Our findings also indicated that teaching support staff and school managers had low levels of knowledge and had stigmatised beliefs towards children with ADHD. This supports and extends previous research which has demonstrated that classroom teachers hold stigmatized views, express negative emotions and show a lack of confidence towards children with ADHD (Atkinson et al., 1997; Chi & Hinshaw, 2002; Ohan et al., 2011). This further highlights the importance of future research involving a wider range of professionals involved in the education of children with ADHD; beyond the study of classroom teachers alone.

Relationship between knowledge and stigma about ADHD and attitudes towards inclusion

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Examination of the relationship between knowledge, stigmatised beliefs and attitudes towards the inclusion of children with ADHD revealed those who displayed higher levels of knowledge of ADHD, reported lower levels of stigma and expressed more positive attitudes towards the inclusion of children with ADHD in mainstream classrooms. This extends previous research which has reported links between knowledge and attitudes in relation to other developmental disabilities (Avramidis & Kalyva, 2007; Batsiou et al., 2008; Ghanizadeh et al., 2006; Kim et al., 2005). Further, research in other domains has emphasized the importance of knowledge in reducing stigma (Martinez-Zambrano et al., 2013). Our findings support this in the context of ADHD and also show that reduced stigma mediates the relationship between knowledge and cognitive and affective attitudes towards inclusion. Greater knowledge of ADHD was related to lower levels of stigma beliefs and this in turn predicted more positive attitudes towards the educational inclusion of children with ADHD.

It should be noted, however, that different domains of knowledge were important for different components of attitudes. For example, knowledge about ADHD symptoms was important in the prediction of cognitive attitudes towards ADHD (stigma mediated this relationship). Cognitive attitudes can be described as beliefs, thoughts and attributes about the inclusion of children with ADHD (Eagly & Chaiken, 1993). Thus, the cognitive component of attitude relates to the overall evaluation of inclusion of children with ADHD in mainstream education. The more knowledge educational practitioners are given about ADHD symptoms, the less stigma they will have towards this group and as a result, the more positive attitudes towards inclusion they will demonstrate. This may relate to educators feeling that they understand the disorder and thus may know how best to deal with challenging

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symptoms in the classroom. If training provides education on how ADHD manifests, staff have the time and space to consider what classroom adaptations are needed to successfully include children with ADHD in their mainstream classroom.

In contrast to this, educators' affective attitudes towards ADHD were related to knowledge about treatment of ADHD and again, this relationship was mediated by stigma. Affective attitudes relate to feelings or emotions associated with working with children with ADHD (Eagly & Chaiken, 1993). This may be a result of the disorder appearing controllable, thus impacting on emotions such as confidence or empathy. Indeed, evidence suggests that teachers who view disability as controllable may hold different beliefs towards children with that particular disability (Brady & Woolfson, 2008; Woolfson & Brady, 2009). It is important to note, however, that we did not assess specific emotions and thus, this is an area for future research.

Finally, the behavioural component of inclusive attitude was related to knowledge about general information about the nature, causes, and outcomes associated with an ADHD diagnosis. The more knowledge educational practitioners have about these features of ADHD, the more likely they are to intend to work with children with ADHD in their classroom (i.e. a typical mainstream educational setting). Using psychological theories such as the Theory of Planned Behaviour (TPB; Ajzen, 1991), previous work has found that teachers have more positive intentions to inclusion when they perceive they have enough resources to manage the situation (MacFarlane & Woolfson, 2013; Wilson et al., 2016). Our findings support this showing that intentions may be more positive when the individual has more knowledge. This suggests future work may benefit from utilising TPB when examining educational professionals' beliefs and behaviour towards children with ADHD.

It is important to note that stigmatised beliefs were not a significant predictor of behavioural attitudes. Given that the behavioural component of attitude has been argued to represent a behavioural intention rather than an attitude (Ajzen & Fishbein, 1975, 2005; Triandis 1971), our findings suggest that stigma beliefs do not impact on educational professionals' expressed willingness to work with children with ADHD but instead impact upon their cognitive and affective evaluations of inclusive education. This in turn, will likely impact upon their professional practice and the educational experience of children with ADHD.

Implications for Practice

The findings reported here demonstrate two clear implications for the education profession. First, between profession differences in knowledge, stigma and attitudes highlight the importance of effective collaborative working. Until pre and in-service training is provided to redress current low levels of knowledge and high levels of stigma associated with ADHD amongst school staff, collaboration with psychologists working in educational settings would appear essential to ensure children with ADHD receive the support and understanding they need.

Second, it is clear training is needed to support school staff working with ADHD. All school staff should be supported through the provision of ADHD training and should be encouraged to uptake this. Educational psychologists should be enabled and encouraged to deliver such training as a cost-effective means to deliver ADHD training to teaching staff. Given different domains of knowledge about ADHD may differentially impact components of attitudes towards educational inclusion, our findings suggest that training should focus on improving general knowledge of the

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attributes of children with ADHD, ADHD symptoms (and the diagnostic process) as well as approaches to treatment and management of the disorder at school.

Limitations

One limitation of the study reported here relates to the use of self-report methods. Common method variance and socially desirable responding are well documented arguments against the use of self-report behaviour measures (Campbell & Fiske, 1959; Van de Mortel, 2008). However, confidentiality was assured in order to reduce social desirability. The findings indicated that participants utilized the full range of the self-report scales (i.e. some participants reported positive attitudes towards inclusion, while others reported negative attitudes), increasing our confidence in the validity of the results.

Another possible limitation is that the study was undertaken within the Scottish education system and thus the findings may not represent professionals working in other nations. Future research ought to consider knowledge, stigma and attitudes towards the inclusion of children with ADHD amongst education professionals working within different educational and political landscapes, taking account of differences in policy and its impact on the educational experiences of children with ADHD and the range of professionals who work to support them.

Conclusions

The current study was the first to examine differences in both knowledge of and stigma beliefs towards ADHD and the impact of these factors on attitudes towards the inclusion of children with ADHD amongst education professionals. The findings indicated that educational psychologists displayed more knowledge of

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ADHD (including knowledge about symptoms/diagnosis, treatment and general information). This group also reported less stigmatised beliefs towards children with the disorder and more positive attitudes towards inclusion than did teachers, teaching support staff and school managers. This is important given that knowledge and stigma were related to attitudes towards everyday classroom inclusion. Those with more knowledge of ADHD had less stigma about the disorder and were more likely to view inclusion positively. Training which focuses on enhancing staff knowledge of ADHD is needed to support education staff working with ADHD. Given educational psychologists demonstrate greater knowledge and less stigma regarding ADHD, school based psychologists would appear well placed to deliver in-house training to teachers, school managers and teaching support staff.

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